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EXAMINER	
PAK, YONG D	

ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,147	KINDL ET AL.	
	Examiner	Art Unit	
	Yong D Pak	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *5,7 and 15-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6 and 8-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/27/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This application is a 371 of PCT/EP00/09912.

Claims 1-20 are pending. Claims 5, 7 and 15-20 are withdrawn. Claims 1-4, 6 and 8-14 are under consideration.

Election/Restrictions

Applicant's election with traverse of Group I with a further election of SEQ ID NO:1 and Δ-4 desaturase in the reply filed on May 14, 2004 is acknowledged. The traversal is on the ground(s) that the claimed inventions is linked to from a "single general inventive concept" and therefore meets the requirement for unity of invention and that is is not necessary that a "special technical feature be present". This is not found persuasive because the special technical feature linking inventions of Groups I-IV does not define a contribution over the prior art.

The instant application contains more than one invention. MPEP 1850 states that "With respect to a group of inventions claimed in an international application, unity of invention exists only when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" is defined in PCT Rule 13.2 as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art.

Further, contrary to applicant's argument, the claims are not even drawn to a single general inventive concept. This is because, as can be see from claims 1-4, the "biosynthesis gene nucleic acid sequence" can range from a dehydrogenase, a synthase, an oxidase, a carboxylase, etc., which are diverse in their functions and cannot be concluded as having the same technical feature.

Applicants also argue that the Commissioner of the USPTO has determine that a "reasonable number" of independent distinct sequence will be examined in a single application. This is not found persuasive because even though applicants are allowed up to ten sequences, the notice in the 1192 O.G. 68 does not guarantee an applicant of more than one sequence.

The requirement is still deemed proper and is therefore made FINAL.

Claims 5, 7 and 15-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 14, 2004.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on March 27, 2002 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

Drawings submitted in this application are accepted by the Examiner for examination purposes only.

Claim Objections

Claim 1 is objected to because the claim is drawn to non-elected product SEQ ID NO:3.

Claims 2 and 13 are objected to because of the following informalities: claim 2 contains an internal period in line 3 and should be replaced with a colon. The scientific names of the microorganism in claim 14 should be italicized. Appropriate correction is required.

Claims 2-3 are objected to because the claims are drawn to non-elected products Acyl-coA dehydrogenases, Acyl-ACP(=acyl carrier protein) desaturases, Acyl-ACP thioesterases, fatty acid acyltransferases, fatty acid synthases, fatty acid hydroxylases), acetyl-coenzyme A carboxylases, acyl-coenzyme A oxidases, fatty acid acetylenases, lipoxygenases, triacylglycerol lipases, allenoxide synthases, hydroperoxide lyases

and/or fatty acid elongases, fatty acid acyltransferases, 5-desaturase, 6-desaturase, 9-desaturase, 12-desaturase, 15-desaturase and a fatty acid elongase.

Claim 9 is also objected fro reciting "a IS element" without providing its expansion.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 6 and 10-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a non-statutory subject matter.

Claims 6 and 10-14, as written, do not sufficiently distinguish over nucleic acids, and organisms as they exist naturally because the claims do not particularly point out any non-naturally occurring differences between the claimed products and the naturally occurring products, such as being "isolated" or host cells "transformed" with a vector. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. See Diamond v. Chakrabarty, 447 U.S. 303, 206 USPQ 193 (1980). The claims should be amended to indicate the hand of the inventor, e.g., by insertion of "Isolated" or "Purified" or "host cells transformed" with a vector as taught by the specification. See MPEP 2105.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 and claims 2-4, 6, 8-9 and 10-14 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "composed of a combination" is unclear. It is not clear to the Examiner if the nucleic acid sequence is a chimeric sequence comprising linked sequences encoding enzymes of "fatty acid or lipid metabolism" and SEQ ID NO:1, a polynucleotide encoding a fusion protein comprising enzymes of "fatty acid or lipid metabolism" and SEQ ID NO:2 or a polynucleotide encoding enzymes of "fatty acid or lipid metabolism" and SEQ ID NO:1, expressed with one or more expression regulatory sequences or that these sequences are simply combined together without a physical linkage between each other. For the rejection under 35 U.S.C. 103(a), the claim has been interpreted as a polynucleotide encoding a fusion protein.

Claim 1 and claims 2-4, 6, 8-9 and 10-14 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "a biosynthesis nucleic acid sequence of the fatty acid or lipid metabolism" is unclear. The metes and bounds of the phrase in the context of the above claim is not clear to the Examiner. The phrase can encompass a wide variety of

nucleic acid sequences, such as enzymes, protein, regulatory sequences, promoter sequences, etc., that is outside the scope of the invention. Therefore, it is not clear to the Examiner either from the specification or from the claims as to what applicants mean by the above phrase. It appears that applicant are actually claiming a polynucleotide encoding a fusion polypeptide comprising SEQ ID NO:2 and an enzyme of lipid metabolism. Examiner urges the applicant to simplify the claim language accordingly to remove any ambiguities.

Claim 1 and claims 2-4, 6, 8-9 and 10-14 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the ~~phrase~~ term "derivatives". The metes and bounds of this ~~phrase~~ term is not clear to the Examiner. Literally, the term "derivatives" means a substance made from another substance. Therefore, it is not clear to the Examiner either from the specification or from the claims as to what applicants mean by the above phrase. As applicants have not provided a definition for the above phrase, Examiner has interpreted the claims broadly to mean that "derivatives" of the SEQ ID NO:1 are any variants or mutants of SEQ DI NO:1.

Claims 2-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2-3, the phrase "a sequence of the following protein groups is used" is unclear. It is not clear to the Examiner if the phrase "sequence" is referring to a sequential order of the recited genes in the polynucletodies or if the phrase "sequence" is referring to a nucleic acid "sequence" or the amino acid sequence of the protein. It is also not clear as to how nucleic acid sequences can be linked to amino acid sequences.

Claims 2-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-3 recite the term "gene". The metes and bounds of the phrase in the context of the above claim is not clear to the Examiner. A gene comprises of a coding sequence and introns, exons and regulatory sequences. A perusal of the specification did not provide the Examiner with a specific definition for the above term. Therefore, it is not clear whether the above term in said claims encompass the intronic and regulatory sequences or is limited to a cDNA. Examiner suggests replacing the above term with "polynucleotide" or "nucleic acid sequence".

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, the limitation "(c)" in line 2 in unclear. Applicants need to rewrite the claim that the amino acid sequence encoded by derivatives of claim 1 are 70% identical to SEQ ID NO:2 or 80% identical to SEQ ID NO:2 or 90% identical to SEQ ID NO:2 rather than as recited in the claim.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, the citation of the reference "Program Pilelp.J. Evolution...". It is unclear to the Examiner how the citation is a limitation in the claim. Also, the scope of the claim is uncertain since the reference citation cannot be used properly to identify any particular material or product. Examiner urges applicants to cancel the reference to said publication in the claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 6 and 8-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time

the application was filed, had possession of the claimed invention. These claims are direct to a genus of fusion polynucleotides comprising a polynucleotide encoding an enzyme involved in lipid or fatty acid metabolism and a polynucleotide with SEQ ID NO:1 encoding a polypeptide having 60%, 70%, 80% or 90% amino acid sequence identity with SEQ ID NO:2.

The specification does not contain any disclosure of the function of all fusion polynucleotide sequences encoding fusion polypeptides comprising amino acid sequences that are 60%, 70%, 80% or 90% identical to SEQ ID NO:2. The genus of these polynucleotides that comprise these above polynucleotide molecules is a large variable genus with the potentiality of encoding many different proteins. Therefore, many functionally unrelated polynucleotides are encompassed within the scope of these clams, including partial polynucleotide sequences. The specification discloses only a single species of the claimed genus (i.e. a polypeptide with SEQ ID NO:2 having lipid body lipoxygenase activity) which is insufficient to put one ~~o~~ of skill in the art in possession of the attributes and features of all species within the claimed genus including the fusion proteins. Therefore, one skilled in the art cannot reasonably conclude that the applicant had possession of the claimed invention at the time the instant application was filed.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claims 1-4, 6 and 8-14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polynucleotide encoding a fusion protein comprising the LBLOX of SEQ ID NO:2 and the fatty acid/lipid metabolism enzyme, Δ-4 desaturase, wherein the fusion polypeptide continues to have LBLOX activity, does not reasonably provide enablement for a polynucleotide comprising any polynucleotides encoding any enzyme involved in fatty acid/lipid metabolism and a variant or mutant of SEQ ID NO:1 encoding a polypeptide having at least 60%, 70%, 80% or 90% amino acid sequence identity to SEQ ID NO:2, wherein the encoded polypeptide of SEQ ID NO:1 has any function or no function at all, vectors and transformed host cells comprising the above. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. (see rejection under 35 U.S.C. 112, 2nd paragraph for interpretation of "derivative" of SEQ ID NO:1).

Factors to be considered in determining whether undue experimentation is required are summarized in In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

Claims 1-4, 6 and 8-14 are directed to a fusion polynucleotide comprising a polynucleotide encoding an enzyme involved in fatty acid/lipid metabolism and a variant,

mutant or recombinant of SEQ DI NO:1 encoding a polypeptide having at least 60%, 70%, 80% or 90% amino acid sequence identity to SEQ ID NO:2, vectors comprising said polynucleotide and organisms comprising said polynucleotide. Therefore, these claims are drawn to a genus of polynucleotides having any structure.

The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of polynucleotides comprising, variants and mutants broadly encompassed by the claims. Since the amino acid sequence of a protein determines its structural and functional properties, predictability of which changes can be tolerated in a protein's amino acid sequence and obtain the desired activity requires a knowledge of and guidance with regard to which amino acids in the protein's sequence, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the proteins' structure relates to its function. However, in this case the disclosure is limited to a polynucleotide encoding a fusion protein comprising a specific fatty acid/lipid metabolism enzymes such as Δ-4 desaturase and the LBLOX of SEQ ID NO:2.

It would require undue experimentation of the skilled artisan to make and use the claimed polynucleotides. The specification provides no guidance with regard to the making of variants and mutants of SEQ ID NO:2 or with regard to other uses. In view of the great breadth of the claim, amount of experimentation required to make the claimed polynucleotides, the lack of guidance, working examples, and unpredictability of the art in predicting function from a polypeptide primary structure, the claimed invention would

require undue experimentation. As such, the specification fails to teach one of ordinary skill how to use the full scope of the polynucleotides encompassed by the claims.

While enzyme isolation techniques, recombinant and mutagenesis techniques are known, and it is routine in the art to screen for multiple substitutions or multiple modifications as encompassed by the instant claims, the specific amino acid positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple substitutions.

The specification does not support the broad scope of the claims which encompass all modifications and fragments of polynucleotides of SEQ ID NO:1 encoding a polypeptide having at least 60%, 70%, 80% or 90% amino acid sequence identity to SEQ ID NO:2 because the specification does not establish: (A) regions of the encoded LBLXO structure which may be modified without affecting LBLOX activity or its ability to target foreign proteins to lipid bodies; (B) the general tolerance of LBLOX to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any amino acid residue with an expectation of obtaining the desired biological function; (D) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful; (E) the specification is also silent regarding the final activity of fusion proteins of SEQ ID NO:2.

The claims also broadly encompass not only polynucleotides encoding LBLOX and enzymes of fatty acid/lipid metabolism, but polynucleotides encoding polypeptides having any function or having no function. Therefore, the breadth of these claims is much larger than the scope enabled by the specification.

The specification does not teach how to make variants of polynucleotides of SEQ ID NO:1 or polynucleotides of fatty acid/lipid metabolism encoding polypeptides having any function. The function of a polypeptide cannot be predicted from its structure and the specification does not teach how to use polypeptides having any function or having no activity. The quantity of experimentation in this area is extremely large since there is significant variability in the activity of the polynucleotides in the claims. It would require significant study to identify the actual function of the encoded polypeptides and identifying a use for the encoded polypeptide would be an inventive, unpredictable and difficult undertaking. This would require years of inventive effort, with each of the many intervening steps, upon effective reduction to practice, not providing any guarantee of success in the succeeding steps.

The art is extremely unpredictable with regard to protein function in the absence of realizable information regarding its activity. Even very similar proteins may have every different functions. In the current case, where no specific information is known regarding the function, it is entirely unpredictable what function and activity will be found for the protein. The prior art does not resolve this ambiguity, since no prior art activity is identified for the encoded polypeptides.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including polynucleotide comprising variants and mutants of any polynucleotides of fatty acid/lipid metabolism and any mutants and variants of SEQ ID NO:1 encoding polypeptides having any structure and any function. The scope of the claims must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of variants or mutants of SEQ ID NO:1 and polynucleotides of fatty acid/lipid metabolism having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 6, 8-9 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kindl et al., Murphy et al. and Cronan et al. (see rejection under 35 U.S.C. 112, 2nd paragraph for interpretation of "derivative" of SEQ ID NO:1).

Claims 1-4, 6, 8-9 and 10-14 are drawn to a polynucleotide encoding a protein comprising a Δ-4 desaturase and a variant of LBLOX of SEQ ID NO:2, vector comprising said polynucleotide and S. cerevisiae comprising said polynucleotide.

Kindl (form PTO-1449 – Naturforsch. 52, 1997:1-8) teaches a lipid body lipoxygenase (page 2, 3rd paragraph). This enzyme has been cloned by Hohne et al. (form PTO-1449 – Eur. J. Biochem. 241, 1996: 6-11 and form PTO-892 - NCBI Accession CAA63483.1) and the polynucleotide encoding residues 1-244 of said LBLOX is 100% identical to the polypeptide of SEQ ID NO:2, the teachings of which are incorporated into the reference of Kindl (page 2, 3rd paragraph). Kindl teaches that LBLOX is synthesized and transported to lipid bodies at the beginning of lipid body mobilization, during which fatty acids/lipids are metabolized (page 1, 3rd paragraph and page 7, 2nd paragraph).

The difference between the reference of Kindl et al. and the instant claims is that the reference of Kindl et al. does not teach a polynucleotide encoding a fusion protein

comprising a Δ-4 desaturase and a variant of LBLOX of SEQ ID NO:2, vectors comprising said polynucleotide or microorganism comprising said polynucleotide.

Ohlrogge et al. (form PTO-892 - Oils-Fats-Lipids 1995) teaches a polynucleotide encoding a Δ-4 desaturase, which is an enzyme of fatty acid/lipid metabolism (abstract).

Yamamoto et al. (form PTO-892 – U.S. Patent No. 5,506,120) teaches a polynucleotide encoding a fusion protein, linking proteins via a regulatory signal, vectors comprising said polynucleotide and a *Saccharomyces cerevisiae* comprising said polynucleotide (abstract and Columns 5-14).

Therefore, combining the teachings of the above references, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to make a polynucleotide encoding a fusion protein comprising the LBLOX protein of Kindl and a fatty acid/lipid metabolism enzyme of interest, such as the desaturase of Ohlrogge et al., using the method taught by Yamamoto et al. One of ordinary skill in the art would have been motivated to make the polynucleotide encoding a fusion protein in order to target an enzyme involved in fatty acid/lipid metabolism to lipid bodies and thereby direct the enzyme to the site where its activity is desired. One of ordinary skill in the art would have had a reasonable expectation of success in making the polynucleotide since making polynucleotides encoding fusion proteins is well known in the art, as taught by Yamamoto et al. One of ordinary skill in the art would have had a reasonable expectation of success in targeting the fusion protein to the lipid body since Kindl teaches that LBLOX are transported to lipid bodies.

Therefore, Kindl, Ohlrogge et al. and Yamamoto et al. render claims 1-4, 6, 8-9 and 10-14 prima facie obvious to those skilled in the art.

None of the claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong Pak whose telephone number is 571-272-0935. The examiner can normally be reached 6:30 A.M. to 5:00 P.M. Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Yong D. Pak
Patent Examiner 1652

Manjunath Rao
Primary Examiner 1652